

WHAT IS CLAIMED IS:

1. A method of integrating a resistor in circuit with a bottom electrode of a micro-electromechanical switch on a substrate, comprising the sequential steps of:
depositing a uniform layer of a resistor material over at least one side of said
5 substrate;
depositing a uniform layer of a hard mask material over said resistor material;
depositing a uniform layer of a metal material over said hard mask material,
wherein said deposited layers form a stack;
patterning and etching a bottom electrode and resistor length from said stack; and
10 etching said hard mask and metal materials from said patterned resistor length.
2. The method of Claim 1, wherein said hard mask and metal material remain substantially covering said patterned bottom electrode subsequent to said etching of hard mask and metal material from said patterned resistor length.
3. The method of Claim 2 further comprising the step of depositing a
15 dielectric over said patterned bottom electrode and resistor lengths subsequent to etching said hard mask and metal material from said patterned resistor length.
4. The method of Claim 3 further comprising the step of patterning and etching said deposited dielectric to correspond to said patterned bottom electrode and resistor lengths.

5. The method of Claim 3, wherein said depositing of a dielectric is performed immediately subsequent to etching said hard mask and metal material from said patterned resistor length.
6. The method of Claim 1, wherein said substrate comprises a deposited
5 uniform layer of an anchor material.
7. The method of Claim 6, wherein said anchor material comprises silicon dioxide.
8. The method of Claim 1, wherein said resistor material comprises NiCr.
9. The method of Claim 1, wherein said hard mask material comprises TiW.
10. The method of Claim 1, wherein said metal material comprises Al-Si.
11. The method of Claim 1, wherein at least one of said etching steps comprises wet etching.
- 12.

A RF switch fabricated by a method of integrating a resistor in circuit with a bottom electrode of a micro-electromechanical switch on a substrate, said method comprising the steps of:

5 depositing a uniform layer of a resistor material over at least one side of said substrate;

depositing a uniform layer of a hard masked material over said resistor material;

depositing a uniform layer of a metal material over said hard mask material, wherein said deposited layers form a stack;

10 patterning and etching a bottom electrode and resistor lengths from said stack; and etching said hard mask and metal material from said patterned resistor length.

13. The RF switch of Claim 12, wherein said hard mask and metal material remain substantially covering said patterned bottom electrode subsequent to said etching said hard mask and metal material from said patterned resistor length.

14. The RF switch of Claim 13, further comprising the step of depositing a 15 dielectric over said patterned bottom electrode and resistor following said etching of said hard mask and metal material from said patterned resistor length.

15. The RF switch of Claim 14, further comprising the step of patterning and etching said deposited dielectric to correspond to said pattern bottom electrode and resistor lengths.

16. The RF switch of Claim 14, wherein said act of depositing a dielectric is performed immediately subsequent to etching said hard mask and metal material from said patterned resistor length.

17. The RF switch of Claim 12, wherein said substrate comprises a deposited
5 uniform layer of an anchor material comprising SiO₂.

18. The RF switch of Claim 12 wherein said resistor material comprises NiCr.

19. The RF switch of Claim 12, wherein said metal material comprises Al-Si.

20. The RF switch of Claim 12, wherein at least one of said etching acts comprises wet etching.